

## IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of

Hans-Ulrich MORITZ et al.

Serial No.: 09/719,874

Filed: January 4, 2001

For: Taylor Reactor for Materials  
Conversion in the Course of which a  
Change in Viscosity v of the Reaction  
Medium Occurs

Mail Stop Amendment  
Commissioner for Patents  
PO Box 1450  
Alexandria, VA 22313-1450

Docket No.: IN-5439

Group Art Unit: 1725

Examiner: Len Tran

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Date

Michael Morgan

PATENT

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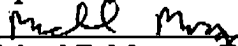
## CONDITIONAL PETITION FOR EXTENSION OF TIME

Applicant believes that no extension of time is required. This conditional petition of time is being made, however, to provide for the possibility that applicants have inadvertently overlooked the need for a petition for extension of time. In this event, please charge Deposit Account 23-3425 the necessary extension of time fees. This document is submitted in duplicate.

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Respectfully submitted,

  
Michael F. Morgan, Esq. (Reg. No. 42,906)  
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Southfield, MI 48034-2442

Date: November 5, 2004

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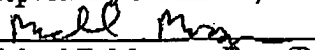
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<b>FEE TRANSMITTAL</b> For FY 2005 Patent fees are subject to annual revision.	Application Number	09/719,874
	Filing Date	January 4, 2001
	First Named Inventor	Hans-Ulrich MORITZ
	Examiner Name	Len Tran
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	Attorney Docket No.	IN-5439
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SUBTOTAL (1)		\$	
2. EXTRA CLAIM FEES			
Extra	Claims	Fee from below	Fee Paid
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Independent Claims	0	-3** = 0 x 84 =	\$
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Fee Code	Fee (\$)	Fee Description	
1202 18		Claims in excess of 20	
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	1053	130 Non-English specification	
	1812	2,520 For filing a request for ex parte reexamination	
	1804	920* Requesting publication of SIR prior to Examiner action	
	1850	1 840* Requesting publication of SIR after Examiner action	
	1251	110 Extension for reply within first month	
	1252	430 Extension for reply within second month	
	1253	980 Extension for reply within third month	
	1254	1,530 Extension for reply within fourth month	
	1255	2,080 Extension for reply within fifth month	
	1401	340 Notice of Appeal	
	1402	340 Filing a brief in support of an appeal	340
	1403	300 Request for oral hearing	
	1451	1,510 Petition to institute public use proceeding	
	1452	110 Petition to revive-unavoidable	
	1453	1,370 Petition to revive-unintentional	
	1501	1,370 Utility issue fee (or reissue)	
	1502	490 Design issue fee	
	1503	660 Plant issue fee	
	1460	130 Petitions to the Commissioner	
	1807	50 Processing fee under 37 CFR 1.17(q)	
	1806	180 Submission information Disclosure Stmt	
	8021	40 Recording each patent assignment per property (times number of properties)	
	1809	790 Filing a submission after final rejection (37 CFR 1.129(a))	
	1810	790 For each additional invention to be examined (37 CFR 1.129(b))	
	1801	790 Request for Continued Examination (RCE)	
	1802	900 Request for expedited examination of a design application	
	1814	110 Terminal Disclaimer Fee	
Other fee (specify) _____			
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SUBTOTAL (3)			(\$340)
Country	USA	Telephone	(248) 948-2355
Name (print Type)	Michael Morgan	Registration No. (Attorney Agent)	42906

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	Examiner Name	Len Tran
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<b>TOTAL AMOUNT OF PAYMENT</b> \$340.00	
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Other fee (specify) _____	
Reduced by Basic Filing Fee Paid	
<b>SUBTOTAL (3)</b> (\$340)	
Country	USA
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Name (print type)	Michael Moran
Registration No. (Attorney Agent)	42906

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**APPEAL BRIEF****TABLE OF CONTENTS**

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**REAL PARTY IN INTEREST**

The real party in interest in this appeal is BASF Coatings Aktiengesellschaft by virtue of an assignment, which was recorded at Reel/Frame: 011450/0028 on January 8, 2001.

**RELATED APPEALS AND INTERFERENCES**

There are no other related appeals or interferences.

**STATUS OF THE CLAIMS**

Claims 1-28 are pending in this application. Claims 1-12 and 20-28 are rejected. Claims 1-12 and 20-28 are appealed. Claims 13-19 are withdrawn from consideration, and they are subject to Rejoinder under MPEP 821.04 as being directed to a method of using the article.

**STATUS OF AMENDMENTS**

No amendments to the claims have been filed after the mailing of the final rejection.

**SUMMARY OF THE INVENTION**

The present invention is directed to a Taylor reactor comprising a) an annular reactor volume defined by an external reactor wall, a concentrically or eccentrically disposed rotor that extends the length of the reactor, a reactor floor, and a reactor lid, b) at least one means for metered addition of reactants into the annular reactor volume, and c) a means for the discharge of product from the annular reactor volume, wherein d) during a conversion within the annular reactor volume there is a change in a viscosity  $\nu$  of a reaction medium, e) one or more of the reactor wall and the rotor are geometrically designed such that the conditions for Taylor vortex flow are met over essentially the entire reactor length of the annular reactor volume, and f) the reactor is not mounted horizontally, and the discharge means is mounted higher than the metered addition means so that a flow through the reactor is counter to gravity. The Taylor reactor is described at page 6, line 15 to page 7, line 5 and page 9, line 23 to page 10, line 3 in the specification.

## GROUND OF REJECTION

Claims 1-9 and 20-24 are rejected under 35 U.S.C. §102(b) as being anticipated by United States Patent No. 5,188,808 to Lilja et al.

Claims 1, 10-12, and 25-28 are rejected under 35 U.S.C. §102(b) as being anticipated by GB 1358157.

## ARGUMENT

In Lilja '808, an impeller (6) is disclosed as being disposed in the reactor. An impeller is not a rotor as is defined within the specification at page 8, line 22 to page 9, line 3. In Lilja '808, there can be a protective lane (7) and a flow reverser (8) in the reactor, but there is no disclosure that either of these structures extend the length of the reactor.

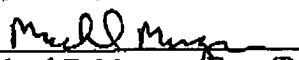
In claim 1, the rotor has the shape defined in the specification at page 8, line 22 to page 9, line 3. The impeller in Lilja '808 does not describe the rotor as it is defined. Also, the rotor extends the length of the reactor. Lilja does not disclose a structure as defined by the term rotor that is disposed the length of the reactor. Therefore, it is respectfully submitted that claims 1-9 and 20-24 are not anticipated by United States Patent No. 5,188,808 to Lilja et al.

GB1358157 discloses that the reactor can be positioned in a horizontal position (page 3, lines 95-104). The reactor can be positioned in a vertical or inclined position (page 3, lines 95-104), but the inlet is higher than the outlet so that flow through the reactor is assisted by gravity. The inlet (6) is in an upper portion of the reactor, and the outlet is in a lower portion of the reactor (page 3, lines 64-69). There is no disclosure of providing an inlet that is lower than the outlet so that flow is counter to gravity.

In claim 1, the reactor is not mounted horizontally, and the discharge means is mounted higher than the metered addition means so that a flow through the reactor is counter to gravity. Because there is no disclosure of this arrangement in GB 1358157, it is respectfully submitted that claims 1, 10-12, and 25-28 are not anticipated by GB1358157.

FOR THESE REASONS, Applicants respectfully petition this Honorable Board to reverse the rejection set forth by the Examiner. Should the Board have any questions about the above remarks, the undersigned attorney would welcome a telephone call.

Respectfully submitted,

  
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Date: November 5, 2004



## APPENDIX

## CLAIMS INVOLVED IN THIS APPEAL

1. (Previously Presented) A Taylor reactor for conducting material conversions, comprising:
  - a) an annular reactor volume defined by an external reactor wall, a concentrically or eccentrically disposed rotor that extends the length of the reactor, a reactor floor, and a reactor lid,
  - b) at least one means for metered addition of reactants into the annular reactor volume, and
  - c) a means for the discharge of product from the annular reactor volume,wherein
  - d) during a conversion within the annular reactor volume there is a change in a viscosity  $\nu$  of a reaction medium,
  - e) one or more of the reactor wall and the rotor are geometrically designed such that the conditions for Taylor vortex flow are met over essentially the entire reactor length of the annular reactor volume, and
  - f) the reactor is not mounted horizontally, and the discharge means is mounted higher than the metered addition means so that a flow through the reactor is counter to gravity.
2. (Previously Presented) The Taylor reactor of claim 1, wherein the external reactor wall and the rotor rotate in the same direction, the angular velocity of the rotor being greater than that of the external reactor wall.
3. (Previously Presented) The Taylor reactor of claim 1, wherein the external reactor wall and the rotor have an essentially circular circumference over the entire reactor length, as viewed in cross section.

4. (Previously Presented) The Taylor reactor of claim 1, which is mounted vertically, the reaction medium being moved against gravity.
5. (Previously Presented) The Taylor reactor of claim 1, wherein the rotor is mounted centrally.
6. (Previously Presented) The Taylor reactor of claim 1, wherein the means for the discharge of the product is disposed at the highest point of the reactor lid.
7. (Previously Presented) The Taylor reactor of claim 1, wherein one or more of the external reactor wall and the rotor (2) are geometrically designed such that an annular gap widens in the flow direction.
8. (Previously Presented) The Taylor reactor of claim 7, wherein the circumference of the external reactor wall (1) increases in the flow direction.
9. (Previously Presented) The Taylor reactor of claim 7, wherein the external reactor wall has the form of a single frustum.
10. (Previously Presented) The Taylor reactor of claim 1, wherein one or more of the external reactor wall and the rotor are geometrically designed such that an annular gap narrows in the flow direction.
11. (Previously Presented) The Taylor reactor of claim 10, wherein the circumference of the external reactor wall (1) reduces in the flow direction.
12. (Previously Presented) The Taylor reactor of claim 10, wherein the external reactor wall has the form of a single frustum.
13. (Withdrawn) A process for converting substances, comprising converting a substance in the Taylor reactor of claim 1,

wherein under the conditions of Taylor vortex flow, a viscosity  $\nu$  of a reaction medium increases in the course of a reaction.

14. (Withdrawn) The process of claim 13, wherein a first reaction takes place in a first flow-traversed subsection of the Taylor reactor and one or more additional reactions take place in one or more additional subsections as viewed in an axial flow direction downstream of at least one further means for metered addition of reactants.
15. (Withdrawn) A process for preparing addition polymers, copolymers, block copolymers and graft copolymers, polycondensation products and polyaddition products, core/shell latices, polymer dispersions, products of polymer- analogous reactions such as the esterification, amidation or urethanization of polymers containing side groups suitable for such reactions, olefinically unsaturated materials curable with electron beams or ultraviolet light, or mesophases, comprising using the process of claim 13.
16. (Withdrawn) A process for converting substances, comprising converting a substance in the Taylor reactor of claim 1, wherein under the conditions of Taylor vortex flow, a viscosity  $\nu$  of a reaction medium falls in the course of a reaction.
17. (Withdrawn) The process of claim 16, wherein a first reaction takes place in a first flow-traversed subsection of the Taylor reactor and one or more additional reactions take place in one or more additional subsections as viewed in an axial flow direction downstream of at least one further means for metered addition of reactants.
18. (Withdrawn) A process for the breakdown of high molecular mass comprising using the process claim 16.
19. (Withdrawn) A process for making moldings, paints, adhesives and other coating materials and films, comprising using as components thereof, substances prepared by the process of claim 13.

20. (Previously Presented) The Taylor reactor of claim 1, wherein the external reactor wall is stationary while the rotor rotates.
21. (Previously Presented) The Taylor reactor of claim 8, wherein the circumference of rotor (2) remains constant.
22. (Previously Presented) The Taylor reactor of claim 8, wherein the circumference of rotor (2) increases.
23. (Previously Presented) The Taylor reactor of claim 8, wherein the circumference of rotor (2) decreases.
24. (Previously Presented) The Taylor reactor of claim 7, wherein the external reactor wall is composed of a plurality of frusta.
25. (Previously Presented) The Taylor reactor of claim 11, wherein the circumference of the rotor remains constant.
26. (Previously Presented) The Taylor reactor of claim 11, wherein the circumference of the rotor increases.
27. (Previously Presented) The Taylor reactor of claim 11, wherein the circumference of the rotor decreases.
28. (Previously Presented) The Taylor reactor of claim 12, wherein the external reactor wall is composed of a plurality of frusta.